

RECONSTRUCTION OF DEPOSITIONAL ENVIRONMENTS FOR
CARBONATE BUILDUPS OF DALMIAPURAM FORMATION (EARLY
CRETACEOUS) IN TIRUCHIRAPALLI DISTRICT, TAMIL NADU, INDIA

R. Krishnamoorthy (Ocean Data Centre, Institute for Ocean Management, Anna Univ., Madras, India)

The present study area bordering the Ariyalur area, towards the west in the Tiruchirapalli District, Tamil Nadu state, is limited within the latitudes 10° 56' 21" to 11° 21' 10" and longitudes 78° 45' to 79° 7' 30". This area where these organogenic rocks are exposed is more or less a plain land and interrupted by shallow limestone quarries. The purpose of this work is to define the paleoenvironmental conditions under which these rocks were deposited. The study involves an elaborate field work, identification of major/minor lithotypes, a detailed petrographic account of carbonate rocks, and distribution of MgO/CaO, important trace elements, and clay mineral species. Staining methods are adopted to study the mineralogical variations of Scanning Electron Microscopy (SEM) for secondary mineral segregation etc. The entire study has been synthesized for a meaningful reconstruction of depositional environments during the early part of the Cretaceous.

Petrographic studies of these limestone bodies show that they are largely made up of mudstone, wackestone, and packstone. These petrographic types and the occurrence of certain clay mineral ingredients, such as kaolinite, montmorillonite and illite, along with the distribution of a few important trace elements (Pb, Ni, Sr, Mn and Fe) suggest that the deposition of the re-efoidal limestones took place in the shallow warm water conditions above the wave base of the paleo-sea of comparatively less salinity under the tropical climatic regime.

THE LAST GLACIAL-INTERGLACIAL TRANSITION IN THE SOUTH CHINA
SEA RECORDED BY STABLE ISOTOPE OF BENTHIC AND PLANKTONIC
FORAMINIFERA

H.R. Kudrass (Bundesanstalt für Geowissenschaften und Rohstoffe, Hannover, Germany), J. Schönfeld, H. Erlenkeuser, K. Winn, and R. von Grafenstein

Piston cores from continental slopes off southern China and off northwestern Borneo were analyzed for foraminiferal carbon and oxygen isotopes. The glacial-interglacial transition in the marginal basin of the South China Sea is interrupted by the Younger Dryas cold episode recorded by planktonic oxygen isotopes in cores with a high sedimentation rate. The preceding period coinciding with the first meltwater pulse is documented in cores up to a water depth of about 1000 m by a time-lagged small fluctuation in the benthic oxygen isotope records. In cores from greater water depths benthic oxygen isotope values are constant at glacial high levels until the beginning of the Younger Dryas and rapidly decrease at the end of this episode. The deep-water benthic carbon isotope signal shifted by + 0.5 ‰ from low glacial to interglacial levels. This shift started at shallow sites earlier (during the Younger Dryas) than in deep sites (after the Younger Dryas). Generally, the main change from glacial to interglacial conditions occurred in the deep South China Sea after the Younger Dryas, this is by more than 2000 years later than in the Atlantic Ocean.